

ABSTRACT OF THE DISCLOSURE

An orthopedic implant includes an implant element for surgical insertion into a bone of a patient, the implant element having a microgeometric repetitive surface pattern in the form of alternating ridges and grooves, each having a fixed or established width in a range of about 2.0 to about 25 microns (micrometers) and a fixed or established depth in a range of about 2 to about 25 microns, in which the microgeometric repetitive patterns define a guide for preferential promotion of the rate, orientation and direction of growth colonies of cells of the bone which are in contact with the surface pattern.